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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,190	02/05/2002	David Hsia	D5221	7242

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EXAMINER

DAVIS, OCTAVIA L

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,190

Applicant(s)

HSIA ET AL.

Examiner

Octavia Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Inventorship

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 5 – 10, 12 – 15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamakado et al.

Regarding claims 1, 2 and 15, Yamakado et al disclose an electromagnetic fuel injection apparatus, an internal combustion engine having an electromagnetic fuel injection apparatus, and a drive circuit of an electromagnetic fuel injection apparatus comprising a driver connection port for connection to driver circuits 100, 100a, 210, an injector connection port for connection to the fuel injectors 10, 10a, a load that simulates a load imposed by the fuel injector (See Cols. 7 and

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8, lines 64 – 67 and 1 - 3, position switch means 110a, 111a, 120a, 121a) for a respective fuel injector or driver circuit, the switches being operable in a respective first position that connects the load through the driver port to the respective driver circuit when the circuits are disconnected from the fuel injectors and a second position that connects the respective driver circuit through the tool to the respective fuel injector when the driver circuits and the fuel injectors are disconnected from each other (See Col. 14, lines)

Regarding claim 5, each fuel injector 10, 10a includes a measuring 11a, 12a for measuring magnetic flux created by flow of electric current from a circuit (See Col. 14, lines 40 – 44).

Regarding claims 6 – 10 and 12 – 14 and 18, the measuring means form respective terminals B1, C, B2, H and a respective switch means 111a, 121a connects a respective terminal of the injector 10a to one of the terminals (See Figs. 9A and 9B).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 4, 11, 16, 17 and 19 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakado et al in view of Hart et al.

Regarding claims 3, 4, 11, 16 and 17, Yamakado et al lack an indicator that indicates when the load is being energized by the driver circuit and that illuminates when the driver circuit is delivering current to the actuator. However, Hart et al disclose a fuel injection system tester for automobiles fuel delivery system comprising a fuel injector 42, a driver 46, a driver circuit 56, and an indicating means 74 being controlled by a micro-controller 34 of which is connected to the injector (See Cols. 2, lines 67 – 68, 1 – 36).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Yamakado et al according to the teachings of Hart et al for the purpose of, displaying information, such as pressure, and test results (See Hart et al, Col. 5, lines 43 – 46).

Regarding claims 19 - 21, Yamakado et al lack performing a plurality of tests including a fuel injector test, a driver injector test, a driver circuit test and a cylinder contribution test, the fuel injector test comprising connecting a voltmeter as the test equipment that measures an electrical characteristic of an electric actuator of a fuel injector to the auxiliary connection port. However, in Hart et al, a plurality of tests are performed including a fuel injector 42 test, a driver injector test, a driver circuit test and a cylinder contribution test (See Cols. 1 and 2, lines 54 – 68 and 1 – 16).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Yamakado et al according to the teachings of Hart et al for the purpose of, providing a device which can be utilized to test the operation of the complete fuel delivery system and the operation of each of the individual components (See Hart et al, Col. 1, lines 48 – 54).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wright (6,367,719) teaches an electromechanical valve driver circuit and method.

Kaireit (3,919,885) teaches an apparatus for analyzing an electronic fuel injection system and the associated engine parts.

Schmitt et al (4,811,710) teaches a fuel injection pump for internal combustion engines.

7. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number (703) 306 - 5896. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on (703) 305 - 4816. The fax phone number for the organization where this application where this application or proceeding is assigned is (703) 746 - 4409.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0956.



OD/2855

10/27/03


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